

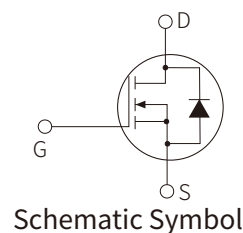
FEATURES

- Surface-mounted package
- Advanced trench cell design



APPLICATION

- LCD TV appliances
- LCDM appliances
- High power inverter system



APPROVALS

RoHS	Compliance with 2011/65/EU
HF	Compliance with IEC61249-2-21:2003

ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Value	Unit
Drain-Source Voltage $T_c=25^\circ\text{C}$	V_{DS}	100	V
Drain Current (Pulsed) $T_c=25^\circ\text{C}$ $V_{GS}=10\text{V}$	I_{DM}^{**}	1200	A
Drain Current (DC)	I_D	$T_c=25^\circ\text{C}$ $V_{GS}=10\text{V}$	A
		$T_c=100^\circ\text{C}$ $V_{GS}=10\text{V}$	A
Gate-Source Voltage $T_c=25^\circ\text{C}$	V_{GS}	± 20	V
Drain power dissipation $T_c=25^\circ\text{C}$	P_{tot}	375	W
Junction Temperature	T_J	175	$^\circ\text{C}$
Storage Temperature	T_{STG}	-55 to 175	$^\circ\text{C}$
Single Pulsed Avalanche Energy $V_{DD}=50\text{V}$, $L=1.0\text{mH}$	E_{AS}	2738	mJ
Thermal Resistance – Junction to Ambient	$R_{\theta JA}^*$	45	$^\circ\text{C/W}$
Thermal Resistance- Junction to Case	$R_{\theta JC}$	0.4	$^\circ\text{C/W}$

Notes:

- * Surface Mounted on 1 in² pad area, $t \leq 10$ sec
- ** Pulse width $\leq 300\mu\text{s}$, duty cycle $\leq 2\%$
- *** Limited by bonding wire

ELECTRICAL CHARACTERISTICS (T_A=25°C)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_{DS}=250\mu A$	100			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_{DS}=250\mu A$	2		4	V
Drain Leakage Current	I_{DSS}	$V_{DS}=80V, V_{GS}=0V$			1	μA
Gate Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$			± 100	nA
On-State Resistance	$R_{DS(on)}^a$	$V_{GS}=10V, I_{DS}=50A$		1.25	1.5	m Ω
		$V_{GS}=6V, I_{DS}=30A$		1.8	2.2	m Ω
Diode Characteristics						
Diode Forward Voltage	V_{SD}^a	$I_{SD}=50A, V_{GS}=0V$			1.3	V
Reverse Recovery Time	t_{rr}	$I_{DS}=50A, V_{GS}=0V$ $dI_{SD}/dt=100A/\mu s$		117		nS
Reverse Recovery Charge	Q_{rr}			273		nC
Dynamic Characteristics ^b						
Input capacitance	C_{iss}	$V_{GS}=0V, V_{DS}=50V,$ Frequency = 1 MHz		9790		pF
Output capacitance	C_{oss}			1700		pF
Reverse transfer capacitance	C_{rss}			104		pF
Turn-on Delay Time	$t_{d(on)}$	$V_{DS}=50V, V_{GEN}=10V$ $R_G=3.9\Omega, R_L=1\Omega,$ $I_{DS}=50A$		29		nS
Turn-on Rise Time	t_r			96		nS
Turn-Off Delay Time	$t_{d(off)}$			108		nS
Turn-Off Fall Time	t_f			96		nS
Gate Charge Characteristics ^b						
Total Gate Charge	Q_g	$V_{DS}=50V, V_{GS}=10V, I_{DS}=50A$		173		nC
Gate-Source Charge	Q_{gs}			50		nC
Gate-Drain Charge	Q_{gd}			45		nC

Notes:

a : Pulse test ; pulse width ≤ 300μs, duty cycle ≤ 2 %

b : Guaranteed by design, not subject to production testing

PARAMETER CHARACTERISTIC CURVE

Figure1: Power Capability

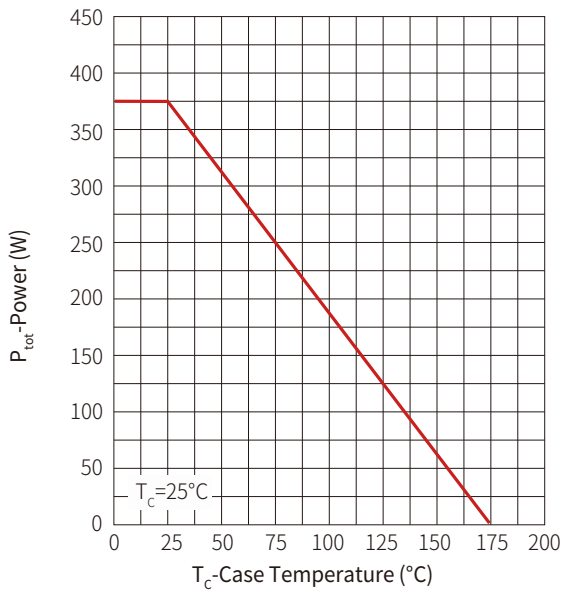


Figure2: Current Capability

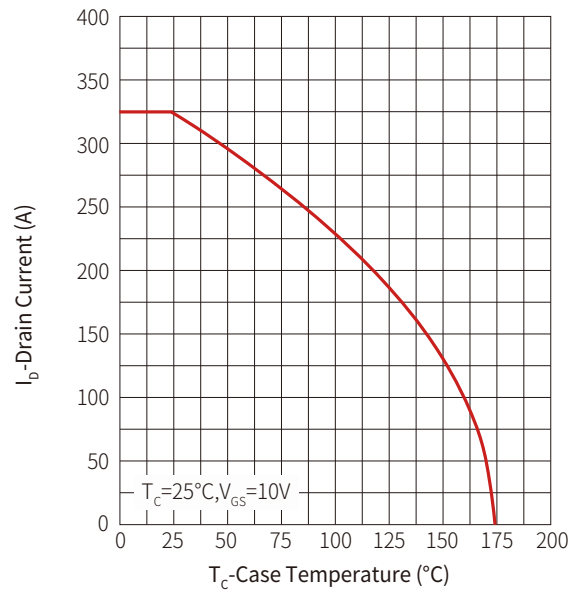


Figure3: Safe operating Area

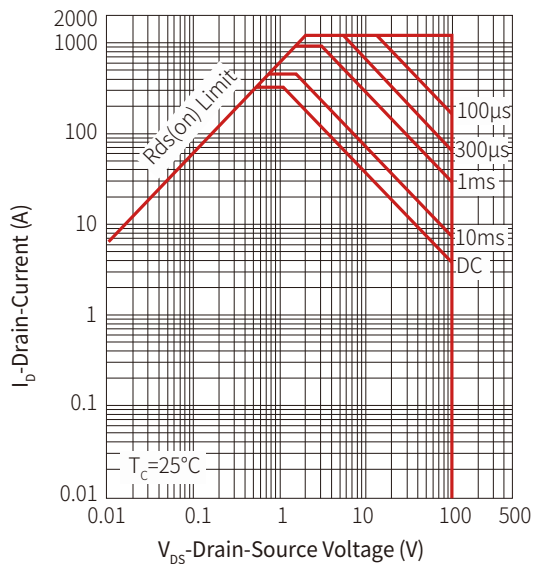


Figure 4: Transient Thermal Impedance

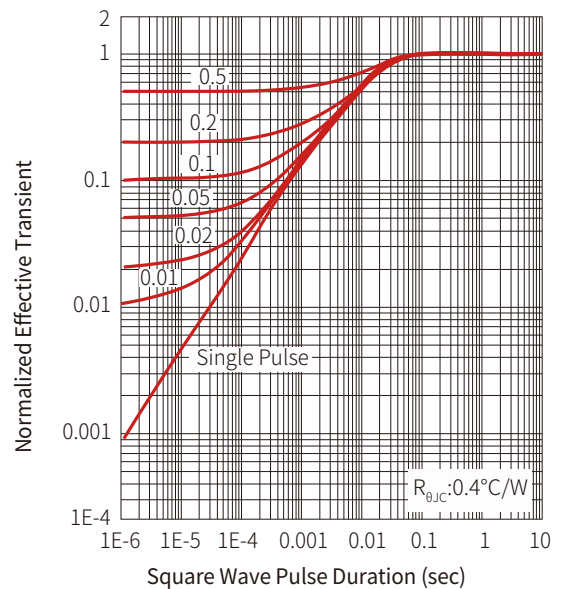


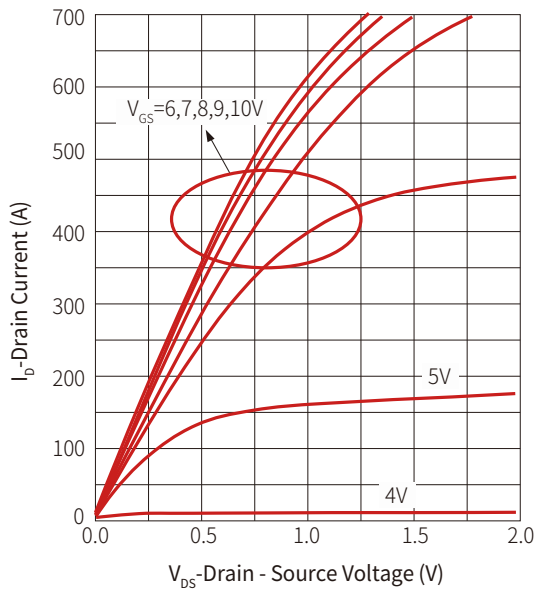
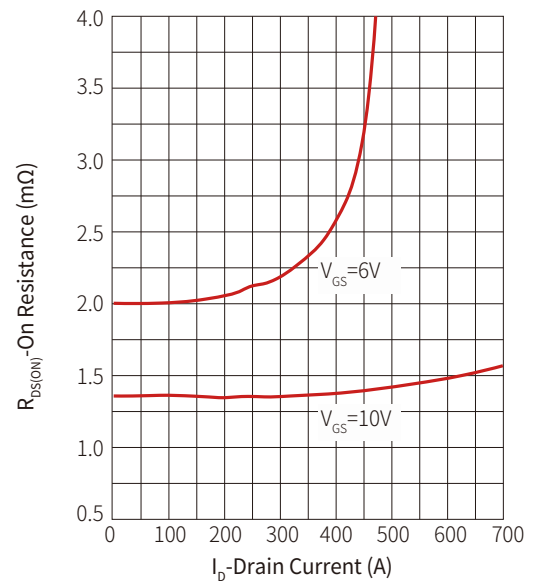
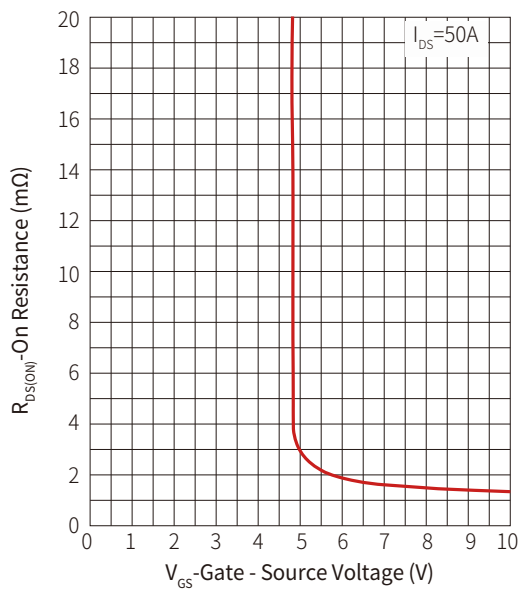
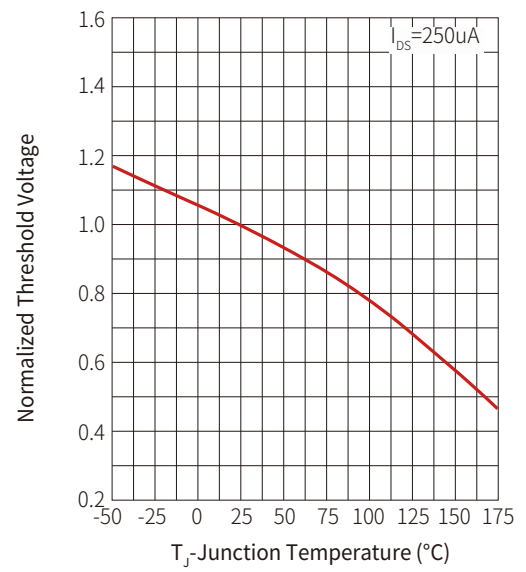
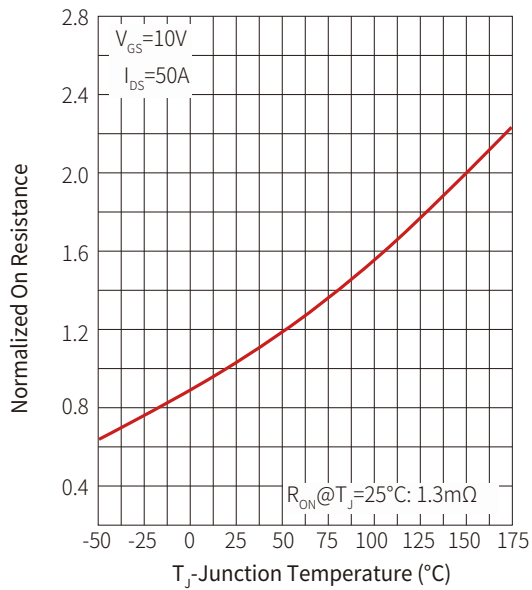
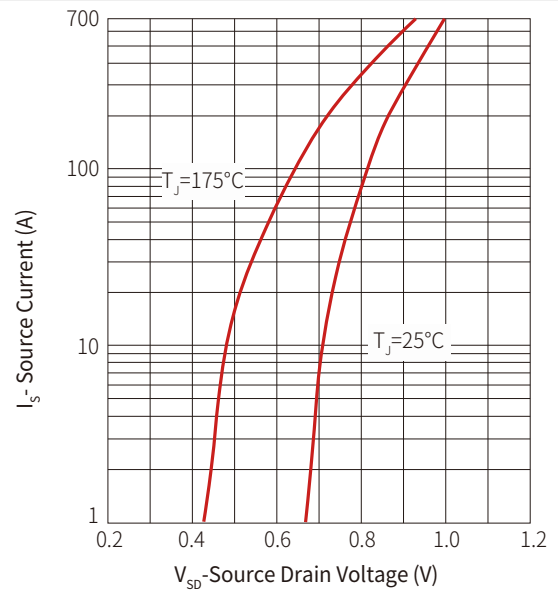
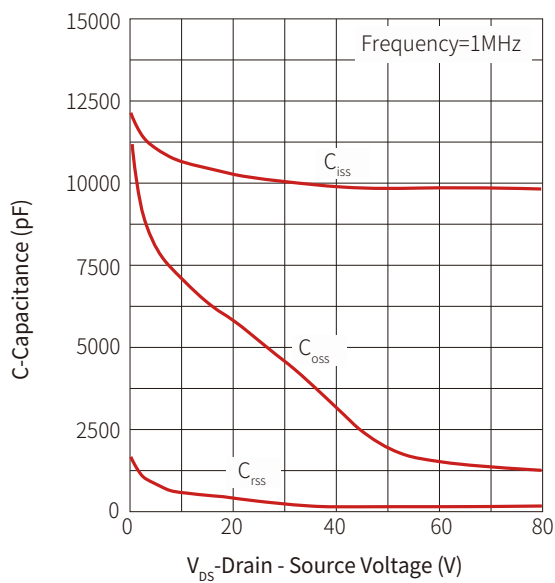
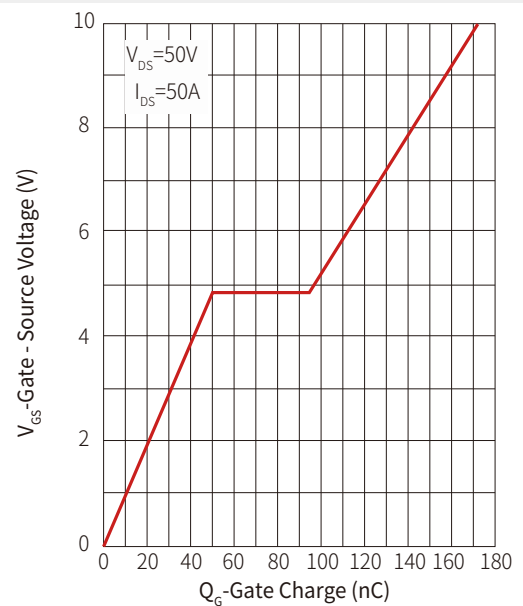
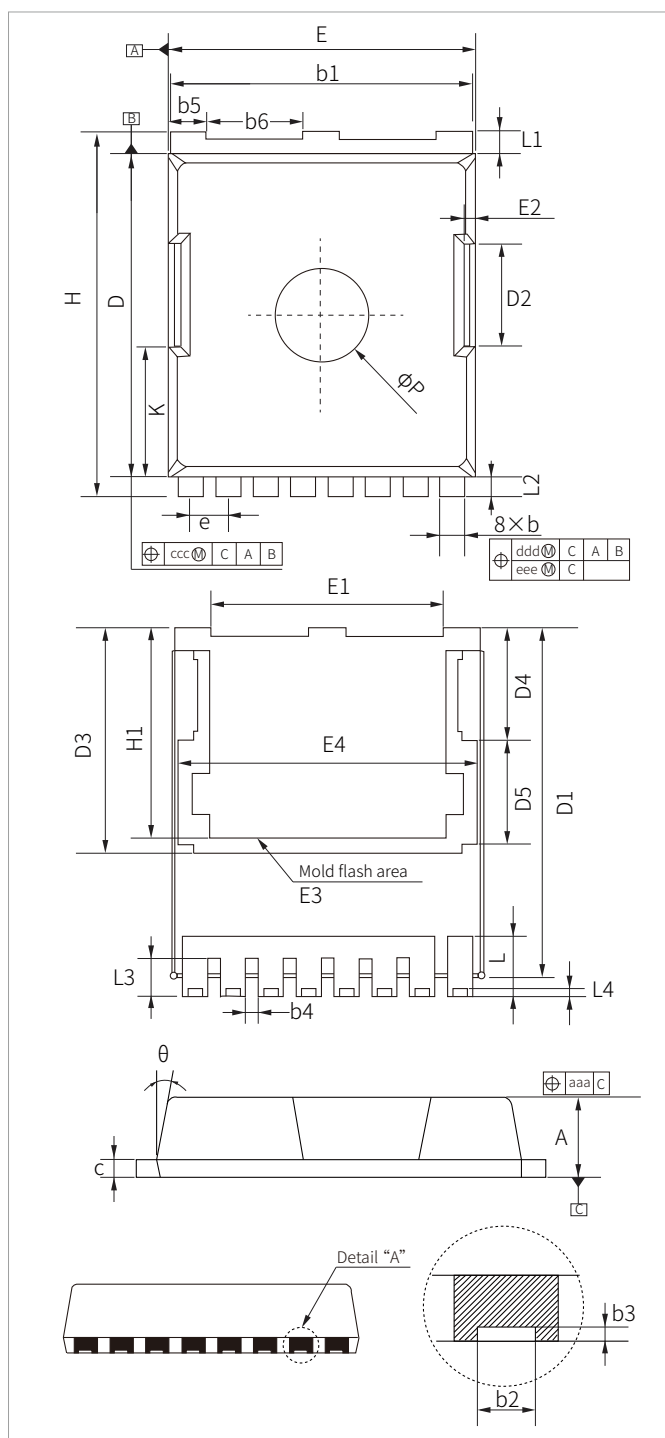
Figure 5: Output Characteristics

Figure 6: On Resistance

Figure 7: Transfer Characteristics

Figure 8: Normalized Threshold Voltage


Figure 9: Normalized On Resistance

Figure 10: Diode Forward Current

Figure 11: Capacitance

Figure 12: Gate Charge


TOLL-8L PACKAGE INFORMATION



Ref.	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	2.20	2.40	0.087	0.094
b	0.70	0.90	0.028	0.035
b1	9.70	9.90	0.382	0.390
b2	0.36	0.55	0.014	0.022
b3	0.05	-	0.002	-
b4	0.30	0.50	0.012	0.020
b5	1.10	1.30	0.043	0.051
b6	3.00	3.20	0.118	0.126
c	0.40	0.60	0.016	0.024
D	10.28	10.55	0.405	0.415
D1	10.98	11.18	0.432	0.440
D2	3.20	3.40	0.126	0.134
D3	7.15		0.281	
D4	3.59		0.141	
D5	3.26		0.128	
e	1.10	1.30	0.043	0.051
E	9.80	10.00	0.386	0.394
E1	7.40	7.60	0.291	0.299
E2	7.40	7.60	0.291	0.299
E3	8.50		0.335	
E4	9.46		0.372	
H	11.50	11.85	0.453	0.466
H1	6.55	6.75	0.258	0.266
K	4.08	4.28	0.161	0.169
L	1.60	2.10	0.063	0.083
L1	0.50	0.90	0.020	0.035
L2	0.50	0.70	0.020	0.028
L3	1.00	1.30	0.040	0.051
L4	0.13	0.33	0.005	0.013
P	2.85	3.15	0.112	0.124
θ	10°REF		0.398°REF	
aaa	0.20		0.008	
ccc	0.20		0.008	
ddd	0.25		0.010	
eee	0.20		0.008	

ORDERING INFORMATION

Part Number	Component Package	Marking	QTY/Reel	QTY/Box
SNM300N10L	TOLL-8L	 300N10 XXXX	2000PCS	14000PCS

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